

# New Talent, New Opportunity

Preparing the Information Professional for the Future

March 24, 2015



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Drexel's Drexel  
Cybersecurity  
Institute, partnership  
with the U.S. Army  
Reserves  
(Feb. 2015, press)



# College of Computing & Informatics

Founded in 2013 by Dean David E. Fenske

- College of Information Science and Technology (iSchool)
- Department of Computer Science, College of Engineering
- Department of Computing and Security Technology, Goodwin College of Professional Studies

Hub, multi-disciplinary computing and informatics activities

# Programs

- Graduate Programs
- Undergraduate Programs
- Professional Development Programs

# Graduate Programs

1. Master of Science in Library and Information Science (MS) (ranked 10<sup>th</sup> U.S. News & World)
2. Master of Science in Computer Science (MSCS)
3. Master of Science in Health Informatics (MSHI)
4. Master of Science in Information Systems (MSIS)
5. Master of Science in Software Engineering (MSSE)
6. Master of Science in National Security Management (MSNSM)
7. Master of Science in Cybersecurity (MSC)
8. Dual Degrees (simultaneously, 2 CCI master's degrees)
9. PhD in Computer Science
10. PhD in Information Studies

## UNDERGRADUATE PROGRAMS



### **Bachelor of Data Science (BSDS)**

prepares students to meet the challenges presented by the explosive growth of very large scale data sources

1. Bachelor of Science or Bachelor of Arts in Computer Science (BSCS/BACS)
2. Bachelor of Science in Software Engineering (BSSE)
3. Bachelor of Science in Informatics (BSI)
4. Bachelor of Science in Information Systems (BSIS)
5. Bachelor of Science in Information Technology (BSIT)
6. Bachelor of Science in Computing and Security Technology (BS)

Career development, CCI programs  
students w/bachelor's or master's degree, any field to

- update education
- develop new expertise

### **Online Certificates**

- Graduate Certificate in Cybersecurity, Law & Policy
- Graduate Certificate in Continuity Management
- Graduate Certificate in Healthcare Informatics
- Graduate Certificate in Homeland Security
- Graduate Certificate in Intelligence

### **Course Certificates**

- Post-Master's Specialist Program
  - Archival Studies, Competitive Intelligence and Knowledge Management, Digital Libraries, and Youth Services

### **+ Professional Development Options**

- Advanced Certificate in Information Studies and Technology (ACIST)
- Special Associate Study
- Post-master's Study Program

# Disciplines/faculties

1. Computer Science
2. Computer Security
3. Human-Centered Computing
4. Informatics & Data Science
5. Information Technology
6. Library & Information Science
7. Systems & Software Engineering





*‘selected’ CCI degree highlights,  
preparing information  
professionals for pressing needs  
and emerging trends*



## Why Data Science Jobs Are in High Demand

Post by [Extension Blog](#)



July 30, 2014

In recent years Billy Beane

[Sign up for e-mail](#)

Need for  
Data  
Scientists

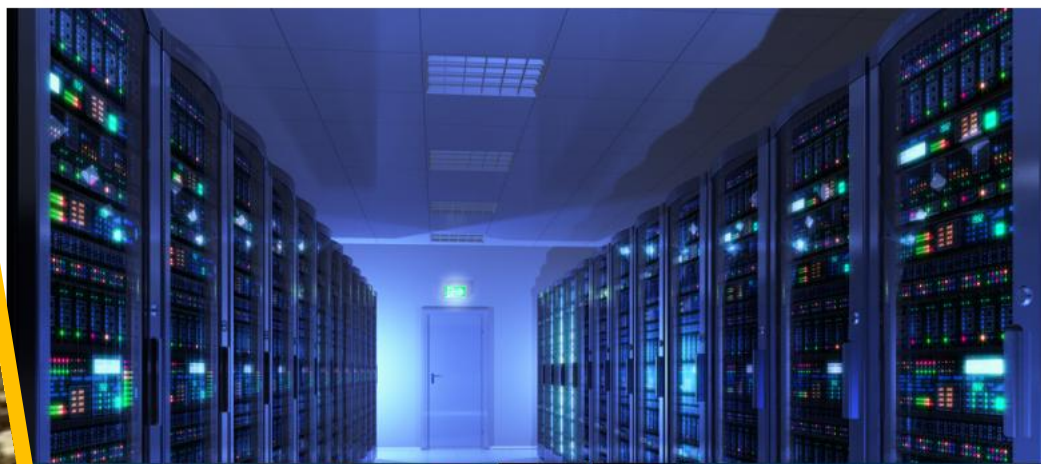
COMBINE DATA AND BUSINESS  
YOU SHOULD



THE BEST SOLUTION A  
DATA SCIENTIST WILL BE

### Big Data

## Data scientists needed: Why this career is exploding right now



# Bachelor of Data Science (BSDS)

Peter Grillo



- Address explosive growth large scale data sources
- Skill + knowledge address Big data challenges and opportunities

Data Science students learn to

- Define needs of individuals + organizations
- Select, transform, increase usefulness, solve problems
- Analyze + synthesize unstructured data to create actionable information
- Visualizations
- Manage
- Secure and preserve data in ways consistent with legal and organizational considerations.



# BS Data Science Program

## Educational Objectives (3-5 yrs.) out..

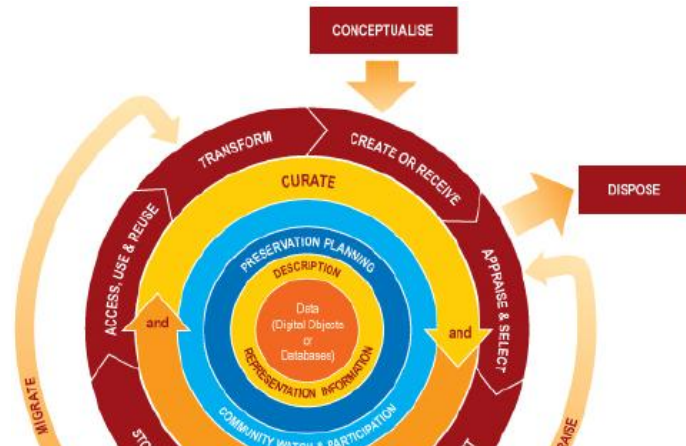
*Achieve one or more milestone*

1. Be valued contributors to private or public organizations as demonstrated by promotions, increased responsibility, or other professional recognition
2. Contribute to professional knowledge as demonstrated by published papers, technical reports, patents, or conference presentations
3. Succeed in continuing professional development as demonstrated by completion of graduate studies or professional certifications
4. Display commitment and leadership within the profession and community as demonstrated by contributions towards society's greater good and prosperity





archives



The Economist

FEBRUARY 27TH-MARCH 5TH 2010

Economist.com

Obama the warrior  
Misgoverning Argentina  
The economic shift from West to East  
Genetically modified crops blossom  
The right to eat cats and dogs

# The data deluge

AND HOW TO HANDLE IT: A 14-PAGE SPECIAL REPORT



# Archival Studies

**Susan E. Davis, Lorraine (Lori) Richards**

Focuses on the practice and theory of managing collections of records and papers in a variety of archival settings, including government agencies, libraries, historical societies, not-for-profit organizations, museums, and religious institutions

- Introduction to Archives I and II
- Archival Access Systems
- Digital Preservation
- Electronic Records
- Selection and Appraisal



# & Digital Curation

Focuses on the active management and preservation of digital resources throughout the lifecycle, in supporting the needs of current and future researchers

- Introduction to Archives I
- Introduction to Digital Curation
- Digital Preservation
- Additional course from list of technology courses
- Additional course from list of content added-value courses



# The 20 Best Online Master's in Healthcare Informatics Degree Programs



## 11. Drexel University



*Online Master in Health Informatics*

Drexel University's Online Master of Science in Health Informatics (MSHI) is an interdisciplinary program offered through the College of Computing and Informatics with curriculum input from the university's College of Nursing and Health Professions.

Drexel University is a charter member of the American Medical Informatics Association

J Med Libr Assoc. 2011 Jan; 99(1): 61–69.  
doi: [10.3163/1536-5050.99.1.011](https://doi.org/10.3163/1536-5050.99.1.011)

PMCID: PM

## Miles to go before we sleep: education, technology, and the changing paradigms in health information<sup>\*</sup>

[Ana D Cleveland](#), PhD, AHIP

[Author information](#) ► [Copyright and License information](#) ►

**JMLA**  
Journal of the  
Medical Library Association

See also  
Bulletin of the  
Medical Library Association, v. 1–89

MANET

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SUBMISSIONS





# Drexel Initiatives—Making Good on the Nation's HIT Investment

Prudence (Pru) Dalrymple



Billions have been invested in health IT, but progress remain elusive

- Drexel's initiatives focus on:
  - Applying data analytics to health data to improve outcomes and reduce costs
  - Designing Patient-centered applications to put patients at the center of healthcare
  - Delivering online tailored educational programs to train the digital healthcare workforce

# Health Informatics- A Key Drexel Initiative

- Since 2002, Drexel's Institute for Health Informatics has offered lead inter-disciplinary educational programs in health informatics and is a charter member of AMIA's Academic Forum
- In 2011, Drexel partnered with the University of Louisiana Lafayette to create the NSF-funded Center for Visual and Decision Informatics. CVDI will serve as a research hub to develop tools to enable decision makers in government and industry to improve the way their health information is interpreted and analyzed.
- In 2012, Drexel acquired the Applied Informatics Group to develop software applications for ubiquitous healthcare monitoring and decision support
- In 2103, Drexel created the College of Computing & Informatics to leverage resources to realize positive gains from the billions of government dollars invested in health information technology

# Cybersecurity



# Degree Program

Norm "Gump" Balchunas,  
Col, USAF (ret),

Director National Security Programs



B.S. in Computing and Security Technology (online)

B.S. in Computer Science –Computer Security Concentration (on campus)

Minor in Computer Crime (on campus)

M.S. in Cybersecurity (on campus and online)

M.S. in National Security Management (on campus and online)

Certificate in Computing and Security Technology (online)

Certificate in Homeland Security Management (online)

Certificate in Cybersecurity, Law and Policy (online)

NSA Information Assurance Certificate

National Security Management Certificate

**Professional Development**

# FACULTY RESEARCH

## Creating new knowledge in cybersecurity

Privacy and security – *Rachel Greenstadt*

Image forensics– *Matthew Stamm*

Data fusion & Internet of Things – *Pramod Abichandani*

Wireless key generation – *Kapil R. Dandekar*

UAS Cybersecurity – *Norm Balchunas*

Network anomaly detection – *Harish Sethu*

Malware detection – *Spiros Mancoridis*

Workplace cybersecurity - *Murugan Anandarajan*

Knowledge representation - *Marcello Balduccini*

Network monitoring – *Steven Weber*

Computer crime & forensics – *Rob D'Ovidio*



# IN THE NEWS



Yahoo Email Hacked

*CBS Philly/KYW Newsradio*, Friday, January 31, 2014

Drexel University Opens Cybersecurity Institute

*DrexelNOW*, Monday, February 24, 2014

Drexel University Opens Its New Cybersecurity Institute

*CBS Philly/KYW Newsradio*, Monday, February 24, 2014

Drexel University Cybersecurity Institute Launches

*To Inform is To Influence* (blog), Wednesday, February 26, 2014

Study notes: Cyber attacks, happiness and sculpting

*Metro* (New York), Thursday, March 13, 2014

Data breaches likely as hackers stay a step ahead

*Allentown Morning Call*, Saturday, March 8, 2014

Cyber Security Research Alliance Initiates First Research and Development Projects with Drexel and George Mason University

Cyber Security Research Alliance, Monday, March 24, 2014

Security holes in power grid have federal officials scrambling

*Los Angeles Times*, Monday, April 7, 2014



from Melissa Englund

<u>BS/Major</u>	<u># Students</u>
<b>Computer Science</b>	<b>575</b>
<b>Computing &amp; Security Tech</b>	<b>173</b>
Informatics	9
Information Systems	84
Information Technology	122
Software Engineering	130
Certificates+ visiting	15
<b>TOTAL UNDERGRADUATE</b>	<b>1107</b>
<u>Some of the Masters</u>	<u># Students</u>
Computer Science	61
Health Informatics	49
<b>Information Systems</b>	<b>134</b>
<b>Library &amp; Information Science</b>	<b>332</b>
Software Engineering	36
Computer Science	29
Information Studies	45
<b>TOTAL GRADUATE</b>	<b>711</b>





## 4 Ways Academic Libraries Are Adapting For The Future

Has technology rendered the library obsolete? It doesn't seem so. Instead, centers for higher learning are finding ways to reinvigorate them.

WRITTEN BY [Brad Lukanic](#)

7 NOTES / 103 PIN / 47 PLUS / 693 TWEET / 1.1K LIKE / 328 SHARE



# Employers expectations for new hires

## Linda Marion, Catherine (Cathy) Collins, and Susan Davis



- *Adaptability* – expect & thrive w/constant change
- *Creativity* – new ideas, programs, marketing
- *Leadership* – mgmt., budgeting, project mgmt., grant writing, ethics
- *Comfort with technology* – teaching & demonstrating, including social media
- *Advocacy* – presentation & communication skills
- *Service-orientation* – community outreach, “with” the community, enjoy public interaction
- *Enthusiasm* – for the profession, work, community



Bertot, J.C. & Sarin, L. (2015). The future of the MLS: Rethinking librarian education. American Libraries 46/March/April), 42-44.



# Research Centers & Institutes

1. Applied Informatics Group
2. Center for Spatial Analytics and Geocomputation
3. Center for the Study Of Libraries, Information, & Society
4. Center for Visual And Decision Informatics (CVDI)
5. Drexel University Cybersecurity Institute
6. Institute for Healthcare Informatics
7. Metadata Research Center





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## David E. Fenske, Isaac L. Auerbach Professor and Dean of the College of Computing & Informatics

### » *A visionary*

- Position the University as an academic leader in computing
- Enhance cross-college interdisciplinary learning and research in computing
- Establish computing education as vital to all Drexel majors
- Innovation Neighborhood
- Links - **\*\*government\*\***, regional industry, and non-profit entities
- *New talent = new opportunity*



# Acknowledgments

- Norm Balchunas, Assistant Research Professor & Director of National Security Programs,
- Catherine D. Collins, Associate Teaching Professor
- Prudence W. Dalrymple, Research and Teaching Professor, Susan E. Davis, Associate Teaching Professor, Melissa Englund
- Associate Director of College Operations
- Peter Grillo, Associate Teaching Professor
- Linda Marion, Associate Teaching Professor,
- Lorraine Richards, Assistant Professor